

## CLAIMS

1. A peripheral device which can communicate with a plurality of client devices connected to a  
5 network, comprising:

notification means for notifying a proxy response server connectable to the network of a sleep mode transition request when the peripheral device changes from a normal data processing wait status to  
10 a sleep mode;

reception means receiving a sleep release request from the proxy response server based on a network packet indicating a peripheral device discovery request for a peripheral device which is  
15 changing to a predetermined sleep mode issued by any client device connected to the network after the proxy response server receives the sleep mode transition request from the peripheral device; and

control means for releasing the sleep mode and  
20 returning to a data processing wait status when said reception means receives the sleep release request.

2. The peripheral device according to claim 1, wherein the network packet which is the peripheral device discovery request is a search request packet  
25 for a multicast address set as a predetermined network address for a plurality of peripheral devices.

3. The peripheral device according to claim 1,

wherein the multicast address is a uniquely determined address, and can be determined based on a peripheral device environment, and wherein a multicast address for a peripheral device discovery request in a sleep status can be different from a multicast address of a peripheral device discovery request in a normal status.

4. The peripheral device according to claim 1, wherein the search request packet includes a StandbyQuery instruction indicating a discovery request to a sleeping device.

5. A server device proxy for a peripheral device which can communicate with a plurality of client devices connected to a network, comprising:  
registration means for receiving and registering a sleep transition request announced from a peripheral device in the network when the peripheral device changes from a normal data processing wait status to a sleep mode;

discovery means for retrieving a peripheral device in a sleep status depending on a network packet indicating a specific peripheral device discovery request for discovery of a sleeping peripheral device issued from any client device connected to the network after registration by said registration means; and

notification means for notifying a sleeping

peripheral device whose sleep release request has been registered for release of a sleep mode to a peripheral device retrieved by said discovery means.

6. The server device according to claim 5,  
5 wherein the network packet which is the peripheral device discovery request is a search request packet for a multicast address set as a predetermined network address for a plurality of peripheral devices.

7. The server device according to claim 5,  
10 wherein the multicast address is a uniquely determined address, and can be determined based on a peripheral device environment, and wherein a multicast address for a peripheral device discovery request in a sleep status can be different from a  
15 multicast address of a peripheral device discovery request in a normal status.

8. The server device according to claim 5,  
wherein the search request packet includes a StandbyQuery instruction indicating a discovery  
20 request to a sleeping device.

9. A client device which can communicate with a plurality of peripheral devices or server devices connected over a network, comprising:

issue means for issuing a network packet  
25 indicating a specific peripheral device discovery request for discovery of a peripheral device during transition to sleep status based on a response result

from a network for a request to retrieve a peripheral device in a normal status;

reception means for receiving a return response from any peripheral device notified of a sleep  
5 release request by said server device after the peripheral device discovery request has issued by said issue means; and

data processing means for transmitting a predetermined data processing request to a specific  
10 peripheral device whose sleep mode has been released after said reception means has received the return response.

10. The client device according to claim 9, wherein the network packet which is the peripheral  
15 device discovery request is a search request packet for a multicast address set as a predetermined network address for a plurality of peripheral devices.

11. The client device according to claim 10, wherein the multicast address is a uniquely  
20 determined address, and can be determined based on a peripheral device environment, and wherein a multicast address for a peripheral device discovery request in a sleep status can be different from a multicast address of a peripheral device discovery  
25 request in a normal status.

12. The client device according to claim 10, wherein the search request packet includes a

StandbyQuery instruction indicating a discovery request to a sleeping device.

13. A network device system in which a plurality of peripheral devices connected over a network can communicate with a plurality of client devices capable of recognizing a connection status of a peripheral device in a data processing wait status in the network,

wherein said peripheral device comprises:

10 notification means for notifying a proxy response server connectable to the network of a sleep mode transition request when the peripheral device changes from a normal data processing wait status to a sleep mode;

15 reception means receiving a sleep release request from the proxy response server based on a network packet indicating a peripheral device discovery request for a peripheral device which is changing to a predetermined sleep mode issued by any client device connected to the network after the proxy response server receives the sleep mode transition request from the peripheral device; and

20 control means for releasing the sleep mode and returning to a data processing wait status when said reception means receives the sleep release request,

wherein said proxy response server comprises:

registration means for receiving and  
registering a sleep transition request announced from  
a peripheral device in the network when the  
peripheral device changes from a normal data  
5 processing wait status to a sleep mode;

discovery means for retrieving a  
peripheral device in a sleep status depending on a  
network packet indicating a specific peripheral  
device discovery request for discovery of a sleeping  
10 peripheral device issued from any client device  
connected to the network after registration by said  
registration means; and

notification means for notifying a  
sleeping peripheral device whose sleep release  
15 request has been registered for release of a sleep  
mode to a peripheral device retrieved by said  
discovery means,

and wherein said client device comprises:

issue means for issuing a network packet  
20 indicating a specific peripheral device discovery  
request for discovery of a peripheral device during  
transition to sleep status based on a response result  
from a network for a request to retrieve a peripheral  
device in a normal status;

25 reception means for receiving a return  
response from any peripheral device notified of a  
sleep release request by said server device after the

peripheral device discovery request has issued by said issue means; and

data processing means for transmitting a predetermined data processing request to a specific peripheral device whose sleep mode has been released after said reception means has received the return response.

14. The network device system according to claim 13, wherein the network packet which is the peripheral device discovery request is a search request packet for a multicast address set as a predetermined network address for a plurality of peripheral devices.

15. The network device system according to claim 13, wherein the multicast address is a uniquely determined address, and can be determined based on a peripheral device environment, and wherein a multicast address for a peripheral device discovery request in a sleep status can be different from a multicast address of a peripheral device discovery request in a normal status.

16. The network device system according to claim 14, wherein the search request packet includes a StandbyQuery instruction indicating a discovery request to a sleeping device.

17. A device retrieving method for use with a peripheral device which can communicate with a

plurality of client devices connected to a network,  
comprising:

a notifying step of notifying a proxy response  
server connectable to the network of a sleep mode  
5 transition request when the peripheral device changes  
from a normal data processing wait status to a sleep  
mode;

a receiving step of receiving a sleep release  
request from the proxy response server based on a  
10 network packet indicating a restriction means for a  
peripheral device which is changing to a  
predetermined sleep mode issued by any client device  
connected to the network after the proxy response  
server receives the sleep mode transition request  
15 from the peripheral device; and

control step of releasing the sleep mode and  
returning to a data processing wait status when said  
receiving step receives the sleep release request.

18. A device retrieving method for use with a  
20 server device proxy for a peripheral device which can  
communicate with a plurality of client devices  
connected to a network, comprising:

a registration step of receiving and  
registering a network packet indicating a sleep  
25 transition request announced from a peripheral device  
in the network when the peripheral device changes  
from a normal data processing wait status to a sleep



mode;

a retrieving step of retrieving a peripheral device in a sleep status depending on a network packet indicating a specific peripheral device discovery request for discovery of a sleeping peripheral device issued from any client device connected to the network after registration in said registering step; and

a notifying step of notifying a sleeping peripheral device whose sleep release request has been registered for release of a sleep mode to a peripheral device retrieved in said retrieving step.

19. A device retrieving method for use with client device which can communicate with a plurality of peripheral devices or server devices connected over a network, comprising:

a issuing step of issuing a network packet indicating a specific peripheral device discovery request for discovery of a peripheral device during transition to sleep status based on a response result from a network for a request to retrieve a peripheral device in a normal status;

a receiving step of receiving a return response from any peripheral device notified of a sleep release request by said server device after the peripheral device discovery request has issued in said issuing step; and

a data processing step of transmitting a predetermined data processing request to a specific peripheral device whose sleep mode has been released after said receiving step has received the return  
5 response.

20. A device retrieving method for use with a network device system in which a plurality of peripheral devices connected over a network can communicate with a plurality of client devices  
10 capable of recognizing a connection status of a peripheral device in a data processing wait status in the network,

wherein in said peripheral device, said method comprises:

15 a notifying step of notifying a proxy response server connectable to the network of a network packet indicating a sleep mode transition request when the peripheral device changes from a normal data processing wait status to a sleep mode;  
20 a receiving step of receiving a sleep release request from the proxy response server based on a peripheral device discovery request for a peripheral device which is changing to a predetermined sleep mode issued by any client device  
25 connected to the network after the proxy response server receives the sleep mode transition request from the peripheral device; and

a control step of releasing the sleep mode and returning to a data processing wait status when said receiving step receives the sleep release request,

5        wherein in said proxy response server, said method comprises:

a registering step of receiving and registering a sleep transition request announced from a peripheral device in the network when the  
10    peripheral device changes from a normal data processing wait status to a sleep mode;

a retrieving step of retrieving a peripheral device in a sleep status depending on a network packet indicating a specific peripheral  
15    device discovery request for discovery of a sleeping peripheral device issued from any client device connected to the network after registration in said registering step; and

a notifying step of notifying a sleeping  
20    peripheral device whose sleep release request has been registered for release of a sleep mode to a peripheral device retrieved in said retrieving step,

and wherein in said client device, said method comprises:

25        an issuing step of issuing a network packet indicating a specific peripheral device discovery request for discovery of a peripheral

device during transition to sleep status based on a response result from a network for a request to retrieve a peripheral device in a normal status;

a receiving step of receiving a return  
5 response from any peripheral device notified of a sleep release request by said server device after the peripheral device discovery request has issued in said issuing step; and

a data processing step of transmitting a  
10 predetermined data processing request to a specific peripheral device whose sleep mode has been released after said reception means has received the return response.

21. The peripheral device according to claim 1,  
15 wherein said sleep mode refers to a mode to which power is not supplied to a status management unit of a printer controller from which a LAN controller can receive a status.